REMARKS

In the Final Action dated December 19, 2006, Claims 38 and 54-61 are pending and under examination. Claims 54-61 are rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite. Claims 38 and 54-58 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Tachado et al. (*PNAS, USA*, 94:4022-27, 1997) or Schofield et al. (*Journal of Immunology*, 156:1886-96, 1996). Claims 38 and 54-61 are rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking enabling support.

This Response addresses each of the Examiner's rejections. Applicant therefore respectfully submits that the present application is in condition for allowance. Favorable consideration of all pending claims is therefore respectfully requested.

Claims 54-61 are rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite. The Examiner alleges that the claims are vague and indefinite in the recitation of the word "insufficient." The Examiner contends that the scope of the claim is not clear with regard to the phrase "insufficient lipidic domain to induce or elicit an immune response directed to a GPI lipid domain." The Examiner alleges that the phrase is not defined. The Examiner appears to be concerned as to how much of the lipid domain can remain on the GPI molecule yet fail to induce an immune response against the lipid domain.

In an effort to favorably advance prosecution, Applicant has amended Claim 54 to recite "wherein the lipidic domain in the modified GPI molecule is incapable of inducing or eliciting an immune response directed to a GPI lipid domain." Support for the amendment to Claim 54 is found in the specification, page 12, second paragraph and original claims 1 and 36-38. No new matter is introduced by the amendment to claim 54.

Applicant respectfully submits that Claim 54, as amended, and Claims 55-61,

which depend from Claim 54, are clear and not indefinite. Applicants submit that since the instant claims no longer recite the word "insufficient," the rejection of Claims 54-61 under 35 U.S.C. §112, second paragraph, is overcome. Withdrawal of the rejection is respectfully requested.

Claims 38 and 54-58 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Tachado et al. (*PNAS, USA*, 94:4022-27, 1997) or Schofield et al. (*Journal of Immunology*, 156:1886-96, 1996).

The Examiner alleges that Tachado et al. disclose GPI anchored surface proteins and mAb to the GPI. The Examiner alleges that Tachado et al. disclose derivatives or precursors of the GPI. The Examiner also alleges that Schofield et al. disclose a GPI of malaria parasite origin and in PBS, water or buffer of choice. The Examiner alleges that Schofield et al. disclose mAb to malarial GPI.

The Examiner acknowledges that the cited prior art does not specifically disclose that the lipidic domain is incapable of inducing an immune response and it appears that no immune response is induced against the lipidic domain of GPI. However, the Examiner states that the Patent Office does not have the facilities for examining and comparing applicant's composition with the composition of the prior art reference. The Examiner states that the burden is upon applicants to show a distinction between the material structural and functional characteristics of the claimed composition and the composition of the prior art.

The Examiner appears to be of the opinion that the function or properties of the claimed product are inherent as long as related components of the claimed product are disclosed in the prior art. In this regard, Applicant respectfully submits that the claimed composition is a different product from that shown in the cited prior art references.

Applicant observes that Schofield et al. make no mention of de-lipidated GPI structures. Schofield et al. describe the use of TLC to purify the complete GPI structure, which includes the lipid component. Applicant respectfully directs the Examiner's attention to Exhibit A (Figure 1) that depicts the molecule disclosed in the Schofield et al. reference. Applicant submits that this lipidated GPI shown in Exhibit A is the immediate precursor to the protein-linked form and is structurally identical to the protein-linked form in all features, with the exception of the attachment through the ethanolamine phosphate to the carboxy-terminus of a polypeptide chain. Accordingly, Applicant submits that Schofield et al. neither disclose nor teach a de-lipidated GPI.

Applicant observes that Tachado et al. make use of two GPI structures that were obtained by a specific form of phospholipase hydroylisis. Neither of these molecules are de-lipidated GPIs. The Materials and Methods Section of the Tachado et al. reference contains a section entitled "Generation of chemical and enzymatic hydrolysis fragments of GPIs." This section outlines the chemical method used to treat the GPIs in order to render them sensitive to enzymatic (phospholipase) hydrolysis in detergent (octylthioglucopyranoside). Applicant observes that subsequent to sensitization, the GPIs are treated with the enzymes of choice, namely Phospholipase A2 (PLA2) or GPI-specific phospholipase D (GPI-PLD). The hydrolysis products which are obtained subsequently to these treatments are depicted in Figures 2 and 3, respectively (copies attached as Exhibits B and C).

Applicant observes that Tachado et al. describe that the reaction products were separated by TLC and recovered. Figure 1B of the Tachado et al. reference demonstrates the resolution of these products by TLC and reports on the yield in the figure legend. Applicant respectfully submits that it is these specific GPI reaction products that are used subsequently

through the Tachado et al. reference and these products are different products from the instantly claimed de-lipidated GPI (i.e., the lipidic domain of the GPI is incapable of inducing or eliciting an immune response to a GPI lipid domain). Applicant submits that both of the fragments which are generated by Tachado et al. contain lipids. In the case of the GPI-PLD hydrolysis fragment, it is one palmitic acid attached directly to the inositol; while in the case of the PLA2 hydrolysis fragment it is the same palmitic acid together with an inositol-phospho-1-acyl-glycerol.

In view of above, the rejection of Claims 38 and 54-58 under 35 U.S.C. §102(b) is overcome and withdrawal thereof is respectfully requested.

Claims 38 and 54-61 are rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking enabling support. The Examiner acknowledges that the specification describes the function of the modified GPI. However, the Examiner alleges that the claims do not define how the GPI is modified; and that the specification does not provide enablement for a composition that comprises only a modified GPI. The Examiner states that the specification describes the function of the modified GPI. However, the Examiner alleges that the structure of the modified GPI is not set forth in the claims.

Applicant respectfully submits that the specification teaches that immune responses are induced with the glycan domain of the GPI molecule, see for example page 13, lines 5-20. Claims 59-61 recite structures of the modified GPIs that contain a conserved core glycan, linked to the 6-position of the myo-inositol ring of phosphatidylinositol. Applicant submits that in view of the teaching in the specification, one skilled in the art could make a modified GPI which contained the glycan structure as characterized in these claims and which elicits an immune response to the glycan component, but not the lipidic component, without recourse to undue experimentation.

Applicant also submits that having identified GPI's lacking lipidic domain, such as those shown in attached Exhibit D (Figure 4), a skilled person would be enabled to use this material in a differential screen, for example, to identify protective antibodies. Applicant submits that non-lipidated, partially lipidated and lipidated GPI's can be screened in the context of an ELISA assay, for example. One skilled in the art can, as a matter of course, determine whether a vaccine candidate (the composition being derived by any method) was capable of inducing antibodies which bound to lipidated GPI versus non-lipidated GPI, and the difference between these two targets serving as a measure of the anti-lipid component. Applicant submits that these differential screens enable the derivation of an effective and functional vaccine. The structure/activity information disclosed in the present application teaches the need to induce the production of glycan specific antibodies. Similarly, the structure described can also be used in competitive ELISAs such that the ability of a non-lipidated GPI molecule to competitively inhibit binding of test serum would occur where the test serum was directed to the glycan component of the GPI molecule. However, where the test serum was directed to the lipidic component of the GPI, a non-lipidated GPI would fail, in a competitive ELISA, to compete out antibodies directed to the lipid component of the GPI.

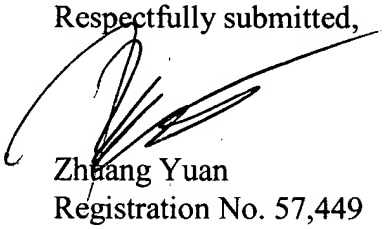
Therefore, Applicant submits that in addition to the very clear structural information which is provided in the specification in terms of the glycan domain and the lipidic domain of a GPI molecule, there are also provided ample means for routinely screening these molecules to determine whether or not they satisfy the functional requirement of the specification being that the modified GPI contains a lipidic domain which is incapable of inducing or eliciting an immune response directed to a GPI lipid. To this end, Applicant also respectfully directs the Examiner's attention to Examples 10-12, 13 and 16-17, which provide the necessary basis for

testing these criteria.

Accordingly, Applicant respectfully submits that undue experimentation would not be required in order to generate a molecule which would fall within the scope of the instant claims. Therefore, the rejection of Claims 38 and 54-61 under 35 U.S.C. §112, first paragraph, as allegedly lacking enabling support is overcome and withdrawal thereof is respectfully requested.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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Encls.: Exhibits A-D